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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,959	03/29/2006	Shigeki Satou	890050.538USPC	1743
500 7590 04/17/2007 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104			EXAMINER NGUYEN, KHANH TUAN	
			ART UNIT 1751	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			04/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/573,959	SATOU ET AL.	
	Examiner	Art Unit	
	Khanh T. Nguyen	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The preliminary amendment filed on 03/29/2006 is entered and acknowledged by the Examiner. Claims 1-16 are currently pending in the instant application.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 03/29/2006 has been regarded by Examiner and made of record in the application file.

Claim Rejections - 35 USC § 112

4. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "closed type emulsifier" in claim 10 is used by the claim to mean "emulsifier", while the accepted meaning is "emulsifier." The term is indefinite because the specification does not clearly redefine the term.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 4, 8, 9 and 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Takayuki et al. (JP Pub. 2003-242835 hereinafter, "Takayuki").

Regarding claim 1, Takayuki discloses a method for preparing a conductive paste for an inner electrode of a multi-layered ceramic electronic component. In the primary (first) process, a formed element powder (conductive powder), a dispersant, and a solvent component are mixed to form the first slurry [0081]. The second process, resinous principle (binders) and solvent component are combined and mixed with the first slurry to produce the second slurry [0082]. Next, the massive object 1.0 micrometer or more are removed from the second slurry in the third process [0083]. In the 4th

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process, solvent ratio can be adjusted (adding or removing solvent) after the 3rd process to control the conductive paste viscosity ([0084], [0087]). The reference specifically or inherently meets each of the claimed limitations. The reference is anticipatory.

Regarding claims 4, Takayuki further discloses the method for preparing a conductive paste in the primary process and second process wherein conductive metal powder, resin and solvent are kneaded using a mixer such as impeller disperser, homogenizer, pot disperser, sand mill disperser and ball miller ([0095], [0134]).

Regarding claim 8, Takayuki further discloses the method for preparing a conductive paste which comprises a step of adding a dispersing agent to the mixture obtained by the kneading step, thereby slurring the mixture ([0067], [0081]).

Regarding claim 9, Takayuki further discloses the method for preparing a conductive paste which comprises steps of adding 0.25 to 5.0 weight % of the dispersing agent with respect to conductive powder to the mixture obtained by the kneading step ([0067], [0081]), thereby lowering the viscosity of the mixture, and then adding the solvent to the mixture, thereby slurring the mixture in the 4th process [0087].

Regarding claim 13, Takayuki further discloses the method for preparing a conductive paste wherein a binder selected from a group consisting of ethylcellulose, polyvinyl butyral, acrylic resin and mixtures thereof is employed as the binder [0064].

Regarding claim 14, Takayuki further discloses a solvent component contained in the conductive paste such as alcohols, terpene system, ketone system, ether system, ester system, hydrocarbon system, polyhydric-alcohol system and mixtures thereof can be used [0078].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 10-12 and 15-16 are rejected under 35 U.S.C. 103(a) as being anticipated by Takayuki et al. (JP Pub. 2003-242835) as applied to the above claims, and further in view of Oda et al. (US Pat. 7,001,539 hereinafter, "Oda").

Takayuki is relied upon as set forth above. With respect to instant claims 2, Takayuki does not disclose the conductive powder, binder and solvent kneading until the mixture reaches the wetting point (ball point) thereof.

In the same field of endeavor, Oda discloses a surface active agent (i.e., dispersant agent and emulsifier) together with solvent will enhance the wetting point of the mixture, specifically enhancing the wetting point of the solvent on the metal particles (Col. 3, lines 27-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have kneaded the conductive powder, binder and solvent until the mixture reaches the wetting point, as taught by Takayuki in view of Oda, in order to improve the adhesion of solvent to the surface of conductive particle.

Regarding claim 10, Oda further discloses the method for preparing a conductive paste wherein a surface active agent (i.e., emulsifier) together with solvent will enhance the wetting point of the mixture, specifically enhancing the wetting point of the solvent on the metal particles (Col. 3, lines 27-29).

Regarding claims 11 and 12, Takayuki further discloses the method for preparing a conductive paste in the primary process and second process wherein metal powder, resin and solvent are kneaded using a mixer such as impeller disperser, homogenizer, pot disperser, sand mill disperser and ball miller ([0095], [0134]). Regarding claim 12, it would have been obvious to one of ordinary skill in the art to use a colloid mill instead of the prior art ball mill to reduce the conductive particle size in the conductive paste.

Regarding claims 15 and 16, Oda further discloses the method for preparing a conductive paste wherein any surface active agents (i.e., dispersing agent) in the known art including cationic, non-ionic, and anionic surface active agents may be used (Col. 3, lines 30-33). Specific surface active agents such as polyethyleneglycol system dispersing agent with hydrophile-lipophile balance (HLB) of 5 to 7 is not explicitly

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discloses by Oda. However, the prior art inherently suggest that any known non-ionic surface active agents in the art may be incorporated. Therefore, the prior art reads on the instant claims 15 and 16. Furthermore, it would have been obvious to one of ordinary skill in the art to use a surface active agent system with low HLB in order to solubilize a hydrophobic solvent such as terpineol.

9. Claims 3, 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being anticipated by Takayuki et al. (JP Pub. 2003-242835) as applied to the above claims, and further in view of Nishide et al. (US Pat. 6,265,090 hereinafter, "Nishide").

Takayuki is relied upon as set forth above. With respect to instant claims 3, 5 and 6, Takayuki discloses a conductive paste 30-70 weight % of metal powder, 1-10 weight % of resinous principle, 0.05-5.0 weight % of dispersant and the remainder is solvent compound [0015]. However, Takayuki does not explicitly disclose the solids concentration of the mixture reaches 84 to 94%.

In the same field of endeavor, Nishide discloses the electrically conductive paste containing about 80-92 weight % of an electrically conductive component (Col. 6, lines 27-28; Table 1, Experiment 10 and 20). Therefore, the prior art reads on the claimed limitation of the solid concentration (i.e., electrically conductive component) of the mixture reaches within the claimed range of 84 to 94%.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have kneaded the conductive powder, binder and

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solvent until the mixture reaches the solid concentration range, as taught by Takayuki in view of Nishide, in order to provide operability of the printing treatment and film slidability during a printing process.

Regarding claim 7, Nishide further discloses the method for preparing a conductive paste comprises of a mixture obtained by mixing together a binder resin and a solvent to form an organic vehicle (Col. 7, lines 43-46). The organic vehicle is used at 8.0 weight % and 10 weight % to the conductive powder (Table 1, Experiment 10 and 20).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh T. Nguyen whose telephone number is (571) 272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KTN
Examiner
04/12/2007



Mark Kozec

Primary Examiner

T.C. 1700